REMARKS

Formal Matters

A clean set of claims, including amended claims, and a red-lined set of amendments to the claims, captioned "Version with markings to show changes" are attached to this response. Claims 1, 5, 17, 21, 26 and 30 have been amended as agreed and Applicants respectfully request allowance of these claims.

Claims 1, 5, 9 and 13 are directed toward one conductor array with at least three (3) conductors, each in a separate axis. Support for this embodiment is found at Page 6, line 2 through Page 9, line 20 and also in Figures 1, 2 and 3. Page 1, lines 3 through 6 discloses a "field established by a first, second, and third conductor 102, 104, and 106. The third conductor 106 is extending from the page in the z-axis." Figure 1 shows the first, second, and third conductors on the three axis (x, y, and z). On page 8, beginning with line 1, the three conductors attached to the three axis and the detection circuits are discussed. Further, on page 8, beginning with line 14, a discussion of the A/D converter is disclosed. It is stated that the "A/D converter must be sensitive enough to detect the minute changes in the fringe region of the **orthogonal array**." (emphasis added). Thus, the embodiment discussed in association with Figures 1, 2 and 3 is a singe array with three conductors, one each attached to a separate axis. This configuration is commonly referred to as the orthogonal array. Therefore, support for these elements of Claims 1, 5, 9 and 13 can be found.

Claims 1, 5, 9 and 13 are also directed toward a converter that translates the sensed movement into three-dimensional vector data. Support for this embodiment is found at Page 8, line 1 through Page 10, line 11 and also in Figures 3 and 4. Figure 3 and the associated description provide an apparatus that translates the sensed movement into three-dimensional vector data. The conductors

102, 104 and 106 sense the movement in each axis. The sensed movement is then translated to an analog signal through the circuitry shown and described in Figure 3 and the detailed description associated with this figure. The final translated signals are output through information lines 118. Further, the method to accomplish this translation is shown in Figure 4 and the detailed description associated with this figure.

Claims 17, 21, 25 and 29 are directed toward two conductor arrays with at least two conductors on each array. Support for this embodiment is found at Page 10, lines 12 through 17 and also in Figure 5A. Page 10, beginning with line 12 discloses an apparatus with a first and second array, each array of conductors containing any number of conductors. Two arrays with at least two conductors each is shown and therefore support for these elements of Claims 17, 21, 25 and 29 can be found.

Support for the translation of the sensed movement claimed in Claims 17,21,25 and 29 is the same as discussed herein. Therefore, Applicant respectfully submits that new Claims 17 - 32 are in condition for allowance.

CONCLUSION

Applicant has amended the claims as agreed and submits that Claims 1- 32 are in condition for allowance.

The Commissioner is further authorized to charge any additional fees required to deposit account 19-4547. A telephone call to the below-signed attorney is invited if it would speed allowance or clarity of any argument.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

1. (Twice Amended) A control device that translates a user's non-tactile movement into a control action comprising:

one [or more] conductor arrays connected to two or more surfaces, wherein said conductor array comprises three or more conductors;

wherein [at least one of] said conductor arrays comprises a first conductor on a first axis of said first surface;

wherein [at least one of] said conductor arrays comprises a second conductor on a second axis, perpendicular to said first axis;

wherein [at least one of] said conductor arrays comprises a third conductor on a third axis, perpendicular to said first and second axis;

wherein the conductors sense the user's non-tactile movement;

a converter that translates the sensed movement into three-dimensional vector data; and

a controller that correlates said three-dimensional vector data into control movement.

5. (Twice Amended) A method of making an apparatus that translates a user's non-tactile movement into a control action comprising:

providing two or more surfaces;

providing one [or more] conductor arrays, wherein said conductor array comprises three or more conductors;

connecting one [or more] said conductor arrays to two or more said surfaces;

wherein [at least one of] said conductor arrays comprises a first conductor on a first axis of said first surface;

wherein [at least one of] said conductor arrays comprises a second conductor on a second axis, perpendicular to said first axis;

wherein [at least one of] said conductor arrays comprises a third conductor on a third axis, perpendicular to said first and second axis;

wherein the conductors sense the user's non-tactile movement;

providing a converter that translates said sensed movement into three-dimensional vector data;

coupling said converter to said conductors;

providing a controller that correlates said three-dimensional vector data into control movement; and

coupling said controller to said converter.

17. (Amended) A control device that translates a user's non-tactile movement into a control action comprising:

two [or more] conductor arrays connected to one or more surfaces, wherein each said conductor array comprises two or more conductors;

wherein a first conductor array comprises a first and second conductor that senses the user's non-tactile movement along a first axis of said surface;

wherein a second conductor array comprises a third and fourth conductor that senses the user's non-tactile movement along a second axis, perpendicular to said first axis;

a converter that translates the sensed movement into three-dimensional vector data; and

a controller that correlates said three-dimensional vector data into control movement.

21. (Amended) A method of making an apparatus that translates a user's non-tactile movement into a control action comprising:

providing one or more surfaces;

providing two [or more] conductor arrays, wherein each said conductor array comprises two or more conductors;

connecting two or more said conductor arrays to one or more said surfaces;

wherein a first conductor array comprises a first and second conductor that senses the user's non-tactile movement along a first axis of said surface;

wherein a second conductor array comprises a third and fourth conductor that senses the user's non-tactile movement along a second axis, perpendicular to said first axis;

providing a converter that translates said sensed movement into three-dimensional vector data;

coupling said converter to said conductors;

providing a controller that correlates said three-dimensional vector data into control movement; and

coupling said controller to said converter.

26. (Amended) The method of Claim 25 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors of one of the <u>axis</u> [conductor arrays].

30. (New) The program storage device of Claim 29 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors of one of the <u>axis</u> [conductor arrays].

Clean set of Claims

1. (Twice Amended) A control device that translates a user's non-tactile movement into a control action comprising:

one conductor arrays connected to two or more surfaces, wherein said conductor array comprises three or more conductors;

wherein said conductor arrays comprises a first conductor on a first axis of said first surface;

wherein said conductor arrays comprises a second conductor on a second axis, perpendicular to said first axis;

wherein said conductor arrays comprises a third conductor on a third axis, perpendicular to said first and second axis;

wherein the conductors sense the user's non-tactile movement;

a converter that translates the sensed movement into three-dimensional vector data; and

a controller that correlates said three-dimensional vector data into control movement.

2. (Amended) The apparatus of Claim 1 wherein said converter comprises circuitry to determine the change in capacitance in the dielectric area found between at least two conductors.

3. (Amended) The apparatus of Claim 1 wherein said converter comprises circuitry to measure the change in the frequency of a first oscillator electrically coupled to said first conductor and a second oscillator electrically coupled to a second conductor.

4. The apparatus of Claim 3 wherein said converter further comprises circuitry to heterodyne said frequency with a fixed oscillator.

5. (Twice Amended) A method of making an apparatus that translates a user's non-tactile movement into a control action comprising:

providing two or more surfaces;

providing one conductor arrays, wherein said conductor array comprises three or more conductors;

connecting one said conductor arrays to two or more said surfaces;

wherein said conductor arrays comprises a first conductor on a first axis of said first surface;

wherein said conductor arrays comprises a second conductor on a second axis, perpendicular to said first axis;

wherein said conductor arrays comprises a third conductor on a third axis, perpendicular to said first and second axis;

wherein the conductors sense the user's non-tactile movement;

providing a converter that translates said sensed movement into three-dimensional vector data;

coupling said converter to said conductors;

providing a controller that correlates said three-dimensional vector data into control movement; and

coupling said controller to said converter.

6. (Amended) The method of Claim 5 wherein said step of providing a converter further comprises providing circuitry to determine the change in capacitance in the dielectric area found between at least two conductors.

7. (Amended) The method of Claim 5 wherein said step of providing a converter further comprises providing circuitry to measure the change in the frequency of a first oscillator which is electrically coupled to said first conductor and a second oscillator which is electrically coupled to said second conductor.

8. The method of Claim 7 wherein said step of providing a converter further comprises providing circuitry that heterodynes said frequency with a fixed oscillator.

9. (Amended) A method that translates a user's non-tactile movement into a control action comprising:

sensing the user's non-tactile movement with a first conductor on a first axis of a surface, with a second conductor on a second axis perpendicular to said first axis, and with a third conductor on a third axis perpendicular to said first and second axis;

translating said sensed movement into three-dimensional vector data; and

correlating said three-dimensional vector data into control movement.

10. (Amended) The method of Claim 9 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors.

11. (Amended) The method of Claim 9 wherein said step of translating further comprises measuring the change in the frequency of a first oscillator which is electrically coupled to said first conductor and a second oscillator which is electrically coupled to said second conductor.

12. The method of Claim 11 wherein said step of translating further comprises heterodyning said frequency with a fixed oscillator.

13. (Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps that translate a user's non-tactile movement into a control action, said method steps comprising the following steps:

sensing the user's non-tactile movement with a first conductor on a first axis of a surface, with a second conductor on a second axis perpendicular to said first axis, and with a third conductor on a third axis perpendicular to said first and second axis;

translating said sensed movement into three-dimensional vector data; and

correlating said three-dimensional vector data into control movement.

14. (Amended) The program storage device of Claim 13 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors.

15. (Amended) The program storage device of Claim 13 wherein said step of translating further comprises measuring the change in the frequency of a first oscillator electrically coupled to said first conductor and a second oscillator electrically coupled to said second conductor.

16. The program storage device of Claim 15 wherein said step of translating further comprises heterodyning said frequency with a fixed oscillator.

17. (Amended) A control device that translates a user's non-tactile movement into a control action comprising:

two conductor arrays connected to one or more surfaces, wherein each said conductor array comprises two or more conductors;

wherein a first conductor array comprises a first and second conductor that senses the user's non-tactile movement along a first axis of said surface;

wherein a second conductor array comprises a third and fourth conductor that senses the user's non-tactile movement along a second axis, perpendicular to said first axis;

a converter that translates the sensed movement into three-dimensional vector data; and

a controller that correlates said three-dimensional vector data into control movement.

18. The apparatus of Claim 17 wherein said converter comprises circuitry to determine the change in capacitance in the dielectric area found between at least two conductors of one of the conductor arrays.

19. The apparatus of Claim 17 wherein said converter comprises circuitry to measure the change in the frequency of a first oscillator electrically coupled to a first conductor and a second oscillator electrically coupled to a second conductor.

20. The apparatus of Claim 19 wherein said converter further comprises circuitry to heterodyne said frequency with a fixed oscillator.

21. (Amended) A method of making an apparatus that translates a user's non-tactile movement into a control action comprising:

providing one or more surfaces;

providing two conductor arrays, wherein each said conductor array comprises two or more conductors;

connecting two or more said conductor arrays to one or more said surfaces;

wherein a first conductor array comprises a first and second conductor that senses the user's non-tactile movement along a first axis of said surface;

wherein a second conductor array comprises a third and fourth conductor that senses the user's non-tactile movement along a second axis, perpendicular to said first axis;

providing a converter that translates said sensed movement into three-dimensional vector data;

coupling said converter to said conductors;

providing a controller that correlates said three-dimensional vector data into control movement; and

coupling said controller to said converter.

22. The method of Claim 21 wherein said step of providing a converter further comprises providing circuitry to determine the change in capacitance in the dielectric area found between at least two conductors of one of the conductor arrays.

23. The method of Claim 21 wherein said step of providing a converter further comprises providing circuitry to measure the change in the frequency of a first oscillator electrically coupled to a first conductor and a second oscillator electrically coupled to a second conductor.

24. The method of Claim 23 wherein said step of providing a converter further comprises providing circuitry that heterodynes said frequency with a fixed oscillator.

25. A method that translates a user's non-tactile movement into a control action comprising:

sensing with a first and second conductor the user's non-tactile movement along a first axis of a surface;

sensing with a third and fourth conductor the user's non-tactile movement along a second axis, perpendicular to said first axis;

translating said sensed movement into three-dimensional vector data; and

correlating said three-dimensional vector data into control movement.

26. (Amended) The method of Claim 25 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors of one of the axis.

27. The method of Claim 25 wherein said step of translating further comprises measuring the change in the frequency of a first oscillator electrically coupled to a first conductor and a second oscillator electrically coupled to a second conductor.

28. The method of Claim 27 wherein said step of translating further comprises heterodyning said frequency with a fixed oscillator.

29. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps that translate a user's non-tactile movement into a control action, said method steps comprising the following steps:

sensing with a first and second conductor the user's non-tactile movement along a first axis of a surface;

sensing with a third and fourth conductor the user's non-tactile movement along a second axis, perpendicular to said first axis;

translating said sensed movement into three-dimensional vector data; and

correlating said three-dimensional vector data into control movement.

30. (Amended) The program storage device of Claim 29 wherein said step of translating further comprises determining the change in capacitance in the dielectric area found between at least two conductors of one of the axis.

31. The program storage device of Claim 29 wherein said step of translating further comprises measuring the change in the frequency of a first oscillator electrically coupled to a first conductor and a second oscillator electrically coupled to a second conductor.

32. The program storage device of Claim 31 wherein said step of translating further comprises heterodyning said frequency with a fixed oscillator.